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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 17215.646-2018

Replacing GB/T 19897.4-2005

**Electricity metering data exchange -- The DLMS/COSEM suite --
Part 46: Data link layer using HDLC protocol**

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Foreword

GB/T 17215 "AC measuring equipment" is divided into several parts, GB/T 17215.6 "Electrical measurement data exchange DLMS/COSEM

Components are divided into the following sections.

- Part 10. Intelligent Measurement Standardization Framework;
- Part 11. DLMS/COSEM communication configuration standard template;
- Part 31. Local area network use based on twisted pair carrier signals;
- Part 46. Data link layer using HDLC protocol;
- Part 47. DLMS/COSEM transmission layer based on IP network;
- Part 53. DLMS/COSEM application layer;
- Part 61. Object Identification System (OBIS);
- Part 62. COSEM interface class;
- Part 73. Wired and wireless M-Bus communication configurations for local and community networks;
- Part 76. HDLC-based connection-oriented three-layer communication configuration;
- Part 91. Communication configuration using the WEB service to access the COSEM server via CAS;
- Part 97. Communication configuration based on TCP-UDP/IP network.

This part is part 46 of GB/T 17215.6.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 19897.4-2005 "Automated meter reading system low-level communication protocol Part 4. Number based on HDLC protocol

According to the link layer. Compared with GB/T 19897.4-2005, the main technical changes are as follows.

- HDLC frame type 3 according to Annex H.4 of ISO /IEC 13239 (see 6.4.1);
- The slave may use multiple addressing schemes (see 6.4.2);
- Increase the negotiation of the maximum information length field to improve the HDLC transmission efficiency (see 6.4.4.3).

This section uses the translation method equivalent to IEC 62056-46.2002 "Electrical Measurement Data Exchange Rates and Load Control Part 46.

Use the data link layer of the HDLC protocol.

This section incorporates amendments to IEC 62056-46.2002/AMD1.2006, which are subject to the terms

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The documents of our country that have a consistent correspondence with the international documents referenced in this part are as follows.

GB/T 2900.77-2008 Electrotechnical terminology - Electrotechnical measurement and instrumentation - Part 1

[IEC 60050 (300-311)..2001, IDT];

GB/T 2900.79-2008 Electrotechnical terminology - Electrotechnical measurement and instrumentation - Part 3

Type [IEC 60050 (300-313)..2001, IDT];

GB/T 2900.89-2012 Electrotechnical terminology - Electrotechnical measurement and instrumentation - Part 2. General terms

[IEC 60050 (300-312)..2001, IDT];

--- GB/T 2900.90-2012 Electrotechnical terminology - Electrical and electronic measurement and instrumentation - Part 4

[IEC 60050 (300-314)..2001, IDT];

---GB/T 7421-2008 Advanced data link control (HDLC) regulations for telecommunications and information exchange between information technology systems

Cheng (ISO /IEC 13239.2002, IDT);

---GB/T 15629.2-2008 Information technology system remote communication and information exchange LAN and metropolitan area network specific

Seeking Part 2. Logical Link Control (ISO /IEC 8802-2.1998, IDT);

---GB/T 17215.101-2010 Data exchange terms for electrical measurement meter reading, rates and load control - Part 1.

Exchange of data-related terms using DLMS/COSEM measurement equipment (IEC TR62051-1:2004, IDT);

---GB/T 17215.653-2018 Electrical Measurement Data Exchange DLMS/COSEM Components Part 53. DLMS/CO-

SEM application layer (IEC 62056-5-3:2017, IDT);

--- GB/T 17215.661-2018 Electrical measurement data exchange DLMS/COSEM components - Part 61. Object identification

OBIS (IEC 62056-6-1:2017, IDT);

---GB/T 17215.662-2018 Electrical measurement data exchange DLMS/COSEM components - Part 62. COSEM

Mouth class (IEC 62056-6-2:2017, IDT);

--- GB/T 19897.3-2005 Automatic meter reading system low-level communication protocol Part 3. Connection-oriented asynchronous data exchange

Physical layer service process (IEC 62056-42:2002, IDT).

This section has made the following editorial changes.

--- Standard name adjustment to the new system. Electrical measurement data exchange DLMS/COSEM components Part 46. Using HDLC Association

The data link layer of the conference.

1 Scope

This part of GB/T 17215.6 specifies a data link layer for connection-oriented, HDLC-based, asynchronous communication protocol sets.

To ensure a consistent data link layer service specification for both connection-oriented and connection-free operation, the data link layer is divided into two

Sublayer. logical link control sublayer (LLCsub-layer) and medium access control sublayer (MACsub-layer).

This section supports the following communication environments.

---Point-to-point and point-to-multipoint configuration;

--- Dedicated and switched data transmission equipment;

---Half duplex and full duplex connection;

--- Asynchronous start/stop transmission, 1 start bit, 8 data bits, no parity, 1 stop bit.

At the same time, the following two special procedures are defined.

--- The separately received service user layer PDU part is transmitted from the server side to the client in a transparent manner. Server side service

The user layer can send its PDU to the data link layer in fragmented form, and the data link layer can hide the fragment for the client side;

--- An event report by sending a UI frame from the slave to the primary station.

Appendix B explains the role of data models and protocols for data exchange in electricity meters.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

IEC 60050-300.2001 Electrotechnical terminology - Electrotechnical measurement and instrumentation - Part 311. General terms

Part 312. General terms for electrical measurements - Part 313. Types of electrical measuring instruments - Part 314. Special

Language

(International Electrotechnical Vocabulary - Electrical and electronic measurements and measuring

instruments - Part 311. General terms relating to measurements - Part 312. General terms relating to

electrical measurements - Part 313. Types of electrical measuring instruments - Part 314. Specific terms

According to the type of instrument)

IEC /T R62051.1999 Electrical measurement terms (Electricity metering - Glossary of terms)

IEC 62051-1.2004 Terms of data exchange for metering, tariffs and load control - Part 1. Part 1

COSEM measuring equipment exchanges data related terms (Electricity metering - Data exchange for meter reading,

tariff and load control - Glossary of Terms - Part 1, Terms related to data exchange with metering equipment using DLMS/COSEM)

IEC 62056-42.2002 Data exchange for metering, rate and load control - Part 42.